Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims

1. (Previously Presented) An actuator configured to actuate a water valve having a valve with a valve stem, the water valve structured to be coupled to a fluid system, the actuator assembly comprising:

a motor configured to drive the valve stem in a first opening direction;

a biasing mechanism for driving the valve stem a second closing direction that is opposite to the first opening direction, wherein the biasing mechanism is structured to close the valve stem within a time period that would cause water hammer in the fluid system; and

a brake for increasing the time period that the biasing mechanism closes the valve stem by an amount that eliminates water hammer in the fluid system.

2. (Previously Presented) An actuator according to claim 1 wherein the biasing mechanism includes one or more springs.

3. (Previously Presented) An actuator according to claim 1 wherein the brake includes a governor that uses friction to reduce the speed at which the valve stem moves in the second direction.

4. (Previously Presented) An actuator according to claim 1 wherein the brake includes a governor that uses magnetic forces to reduce the speed at which the valve stem moves in the second direction.

5. (Previously Presented) An actuator according to claim 1 wherein the brake includes a transmission that changes a gearing ratio of the actuator assembly depending on the

direction of movement, the change in gearing ratio reducing the speed at which the valve stem moves in the second direction.

6. (Previously Presented) An actuator according to claim 1 wherein the brake includes a controller that applies an electrical signal to the motor while the motor is otherwise un-powered and the biasing mechanism is driving the valve stem in the second direction.

7. (Original) An actuator according to claim 6 wherein the controller sequentially applies two or more electrical pulses to the motor.

8. (Original) An actuator according to claim 1 wherein the brake is only activated after the speed at which the valve stem moves in the second direction exceeds a threshold value.

9. (Previously Presented) An actuator assembly configured for securement to a water valve having a valve with a valve stem, the actuator assembly comprising:

a gear assembly configured to engage the valve stem;

a motor having an output shaft that is configured to drive the gear assembly in a first direction; and

biasing structure configured to drive the gear assembly in a second direction;

a brake for reducing or limiting rotational velocity of the output shaft of the motor when the biasing structure is driving the gear assembly in the second direction, the brake is configured to limit the rotational velocity of the output shaft of the motor to less than 1000 RPMs.

10. (Original) The actuator assembly of claim 9, wherein driving the gear assembly in the first direction opens the valve.

11. (Original) The actuator assembly of claim 9, wherein driving the gear assembly in the second direction closes the valve.

12. (Original) The actuator assembly of claim 9, wherein driving the gear assembly in the first direction closes the valve.

13. (Original) The actuator assembly of claim 9, wherein driving the gear assembly in the second direction opens the valve.

14. (Original) The actuator assembly of claim 9, wherein the biasing structure comprises one or more springs.

15. (Original) The actuator assembly of claim 9, wherein the motor comprises a motor housing.

16. (Previously Presented) The actuator assembly of claim 15, wherein the brake comprises a flexible material that moves outwardly under centrifugal force to frictionally engage the motor housing when the output shaft of the motor rotates at a speed greater than a predetermined threshold.

17. (Previously Presented) The actuator assembly of claim 16, wherein the output shaft of the motor is a radially centered shaft that rotates with the motor, and the flexible material of the brake is secured to the radially centered shaft.

18. (Previously Presented) The actuator assembly of claim 17, wherein the flexible material comprises a straight portion having a first end, a second end and a center therebetween, a first curved arm extending from the first end and a second curved arm extending

from the second end, and wherein the center of the straight portion is secured to the radially centered shaft.

19. (Original) The actuator assembly of claim 18, wherein the first curved arm comprises a first thickened portion at an end opposite the straight portion and the second curved arm comprises a second thickened portion at an end opposite the straight portion.

20. (Original) The actuator assembly of claim 19, wherein the first thickened portion and the second thickened portion are configured to frictionally engage the motor housing under a predetermined amount of centrifugal force.

21. (Previously Presented) A valve assembly, comprising:

a valve having an open position and a closed position;

an actuator assembly coupled to the valve, the actuator assembly configured to move the valve between the open position and the closed position;

wherein the actuator assembly comprises a damping mechanism configured to limit a speed of the valve when the actuator assembly is moving the valve from the open position to the closed position such that the valve moves from the open position to the closed position in 4 seconds or more, but does not significantly limit the speed when the actuator assembly is moving the valve from the closed position to the open position.

22. (Original) The valve assembly of claim 21, wherein the valve assembly is configured to be plumbed within a heated water system.

23. (Original) The valve assembly of claim 21, wherein the valve assembly is configured to be plumbed within a chilled water system.

24. (Original) The valve assembly of claim 21, wherein the valve assembly is configured to be plumbed within an irrigation system.

25. (Original) The valve assembly of claim 21, wherein the valve assembly is configured to be plumbed within a potable water system.

26. (Previously Presented) The valve assembly of claim 22, wherein the actuator assembly is configured to move the valve between the open position and the closed position in response to a command signal from a thermostat.

27. (Previously Presented) A valve assembly, comprising:

a valve having an open position and a closed position;

a valve stem operatively attached to the valve;

a gear assembly configured to engage the valve stem;

a motor configured to drive the gear assembly to the open position; and

one or more springs configured to drive the gear assembly to the closed position;

wherein the motor comprises a damping mechanism for limiting rotational velocity of the motor when the one or more springs are driving the gear assembly to the closed position, wherein the damping mechanism is configured to limit the rotational velocity of the motor only after the rotational velocity of the motor exceeds a threshold speed, wherein the threshold speed is 1000 RPMs or less.

28. (Previously Presented) The valve assembly of claim 27, wherein the threshold speed is 800 RPMs or less.

29. (Previously Presented) A method of reducing water hammer caused by operation of a valve, the method comprising the steps of:

driving the valve to a first position corresponding to an open position at a first speed using a first force;

driving the valve to a second position corresponding to a closed position at a second speed using a second force; and

reducing the second speed by providing a force that counters the second force;

wherein the valve moves from the open position to the closed position in 4 seconds or more.

30. (Previously Presented) A method according to claim 29 wherein the first position corresponds to a fully open position of the valve, and the second position corresponds to a fully closed position of the valve.

31. (Previously Presented) A method of reducing water hammer in a fluid system caused by a previously installed water valve assembly that includes a valve and an actuator assembly, the actuator assembly including a first motor structured to move the valve from a first position to a second position, and a return mechanism that is configured to return the valve to the first position at a return speed; the method comprising steps of:

removing the actuator assembly; and

installing a replacement actuator assembly that includes a second motor that includes a motor housing having an inside surface and a brake disposed in the motor housing, the brake being configured to engage at least part of the inside surface of the motor housing to slow the return speed of the second motor sufficiently such that water hammer is eliminated in the fluid system.

32. (Previously Presented) A method of reducing water hammer in a liquid flow system caused by a previously installed water valve assembly that includes a valve and an actuator assembly, the actuator assembly including a housing, a first motor and a return mechanism configured to act against the first motor; the method comprising steps of:

removing at least a portion of the actuator assembly housing;

removing the first motor;

installing a second motor that includes a brake configured to slow a return speed of the second motor when liquid is flowing through the valve, the return speed being sufficiently slowed to reduce the interruption of liquid flowing through the valve, thereby reducing water hammer in the liquid system; and

replacing the at least a portion of the actuator assembly housing.

33. (Previously Presented) The actuator of claim 1, wherein the brake increases the time period that the biasing mechanism closes the valve stem to 4 seconds or more.

34. (Previously Presented) The actuator of claim 1, wherein the brake is structured to limit a rotational velocity of the motor only after the rotational velocity of the motor exceeds a threshold speed, the threshold speed being 900 RPMs or less.